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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 10/623,406
Filing Date: July 18, 2003
Appellant(s): HSIUNG ET AL.

Robert C. Kowert
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 7/28/2008 appealing from the Office action mailed 2/28/2008.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

2002/0032883	KAMPE ET AL.	3-2002
2003/0217119	RAMAN ET AL.	11-2003
6,636,876	ISHIHARA ET AL.	10-2003

Applicant Admitted Prior Art, Application No. 10/623406, p. 1, ll. 13-19.

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

9a. Claims 1-20 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

As to claim 1 and the other independent claims, the specification does not support “wherein the new data is new with respect to the production database.” The specification generally mentions loading “new” data in several places (e.g., fig. 2, para. 0034) but does not describe that the “new data is new with respect to the production database.”

The dependent claims are rejected because they inherit the deficiencies of the independent claims.

9b. Claims 1-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As to claim 1 and the other independent claims, the term "new" is a relative term which renders the claim indefinite. "New" is not defined by the claim, and the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. Furthermore, the intended meaning of "new" is unclear.

The dependent claims are rejected because they inherit the deficiencies of the independent claims.

The broadest reasonable interpretation has been applied to the claims.

9c. Claims 1-2, 5-10, 13-16, and 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kampe et al (US 2002/0032883), hereafter "Kampe," in view of Raman et al (US 2003/0217119), hereafter "Raman."

As to claim 1, Kampe teaches the following claimed subject matter:

A system comprising one or more hosts (fig. 2) configured to implement production system (primary component 205), and

A refresh mechanism (software) configured to:

Generate a storage checkpoint of data of the production system (502);

Generate a data clone, wherein data of the data clone comprises data from the storage checkpoint (502-505);

Load new data to the data clone wherein the load updates the storage checkpoint (504);

After the load, switch from previous data of the production system to the storage checkpoint to be the data for the production system (521, 522, para. 0064, the switch happens after data has been loaded to the checkpoint/replica).

Kampe does not expressly teach a production "database," wherein the data is "file system data," and wherein the production database is available for access by users during the load.

However, Raman teaches a production database (primary data storage system), wherein the data is file system data (para. 0053), and wherein the production database is available for access by users during the load (from para. 0050).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Kampe, such that it implements a production database with file system data, and wherein the database is available for access by users during the load. The motivation would have been to improve accessibility for file system data, as known to one of ordinary skill in the art and taught by Raman (para. 0049).

Kampe as applied above further teaches "wherein the new data is new with respect to the production database" for at least the following reasons:

Kampe meets the claim limitation when interpreting "new" as "different." In addition to updating the checkpoint/"clone" to maintain a current state of the primary component, Kampe teaches that checkpoints have specific characteristics including format, states, control blocks, and attributes (para. 0078). These data characteristics must be "loaded" as claimed in order to manage the checkpoint/"clone" itself. For example, updating checkpoint state data (para. 0046 – 0054, 0080) manages the current operational state of the checkpoint. Furthermore, control block write operations (para. 0085) also meet the "loading new data" limitation for similar reasons. Information regarding checkpoint attributes is found at least at para. 0086. Note that the various checkpoint properties mentioned here are not data previously existing in the primary component. Thus, they are considered "new" data.

Kampe also meets the claim limitation when interpreting "new" as "current," "recent" or "fresh." In fig. 4a, for example, Kampe teaches creating/initializing a replica and "continuously updating a checkpoint." The continuously updated data thus recently comes into existence during creation/update in steps 503-505, whereas the data in the primary component has already existed. The updated data is thus "new" data with respect to the primary component because the updated data is current, recent, and "fresh" data compared to the primary data.

As to claim 2, Kampe as applied above teaches performing post-processing on the clone prior to the switching (502-505).

As to claim 5, Kampe as applied above uses a "checkpoint service" and "replica," which must include references to data in the production database or else the data could not be restored to the primary component (see above and para. 0065).

As to claim 6, Kampe as applied above teaches loading new data to the database clone on a host machine hosting the production database (201, note arrow going from 205 to 211, also see fig. 4A).

Kampe does not expressly teach the above loading "to the database clone" to a different host machine.

However, Raman teaches loading data to a different host machine (fig. 1). Kampe also teaches loading data to a different host machine (fig. 2).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to further modify Kampe and Raman, such that the loading new data to the database clone would occur on a different machine. The motivation would have been to allow a system designer to implement the system if the cloning needs to happen on a different machine. This might occur if there were cost, space, processing, or location constraints.

As to claim 7, Kampe as applied above teaches performing the loading of new data to the database clone on a host machine hosting the production database (fig. 2, 201, see "node1," also see above).

Claims 8-10, 13-16, and 19-20 are rejected on the same basis as claims 1-2 and 5-7 above.

9d. Claims 3, 11 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kampe, in view of Raman, further in view of Ishihara et al (U.S. Patent 6,636,876), hereafter “Ishihara.”

As to claim 3, Kampe and Raman do not expressly teach stopping the production database prior to the switch and starting the production database after the switch.

However, Kampe may stop the production database before switching, and restarting the production database after switching (para. 0065), because the primary is “restarted” using the “switched” checkpointed data. The production database in this case is the same production database. Ishihara teaches the actual steps of stopping a production database prior to a switch, and restarting a production database after the switch (col. 6, ll. 27-50).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Kampe and Raman, such that “stopping the production database prior to the switch and starting the production database after the switch” is implemented. The motivation would have been to facilitate gracefully switching from one data system to another, as known to one of ordinary skill in the art.

Claims 11 and 17 are rejected on the same basis as claim 3 above.

9e. Claims 4, 12, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kampe, in view of Raman, further in view of Applicant Admitted Prior Art, hereafter “AAPA.”

As to claim 4, Kampe and Raman teach a "production database," as discussed above, but do not expressly teach wherein the production database is a data warehouse.

However, AAPA teaches that a data warehouse is a database and may be a consolidation of other databases (p. 1, ll. 13-15).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Kampe and Raman, such that the production database is a data warehouse. The motivation would have been to facilitate business decisions, as taught by AAPA (p. 1, ll. 14-19).

Claims 12 and 18 are rejected on the same basis as claim 4, discussed above.

(10) Response to Argument

First Ground of Rejection

Appellant's arguments were fully considered. An appeal conference was held, and led to the conclusion that the 35 USC 112, first paragraph rejection should be withdrawn. Therefore, the 35 USC 112, first paragraph rejection of claims 1-20 is withdrawn.

Second Ground of Rejection

Appellant's arguments were fully considered. An appeal conference was held, and led to the conclusion that the 35 USC 112, second paragraph rejection should be

withdrawn. Therefore, the 35 USC 112, second paragraph rejection of claims 1-20 is withdrawn.

Third Ground of Rejection

Claims 1, 6-8, 9, 14, 15, and 20

1. *In response to "Kampe in view of Raman fails to teach or suggest loading new data to the database clone, wherein said loading updates the storage checkpoint, wherein the new data is new with respect to the production database."*

Appellant first argues that Kampe "makes no mention of databases" (Brief, p. 12, second line under heading "1"). However, Kampe suggests a database because Kampe is drawn to a storage system that stores, accesses, and replicates data (e.g., ¶¶ 0014-0015, 0042, 0065). To be more explicit in meeting the limitation of "database," the examiner relies on Raman. Raman teaches a primary and replicated storage of file system data (e.g., ¶ 0053; fig. 1; primary storage 26, secondary storage 28, fig. 2; "dataset" 41, 43, 44, etc). Thus, Raman is drawn to a type of database at least because files and datasets are stored, organized, replicated, and accessed by a file system.

The claims do not require any specific kind of database, such as a relational database or spreadsheet. Thus, the combination of Kampe and Raman teaches or suggests the claimed database. The broadest reasonable interpretation in light of the specification is applied to the claims, but limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Appellant further argues that Kampe does not teach "the loading of new data into a clone database" (Brief, p. 12, fourth line under heading "1"). The examiner respectfully disagrees.

It should first be noted that the examiner relied on two interpretations of "new data" (see Final Action, p. 5 bottom - p. 6 bottom). The first interpretation of "new data" is "different data" or "new data that did not previously exist." The second interpretation of "new data" is "data that is current, recent, or fresh." Appellant's arguments regarding both interpretations have been fully considered. An appeal meeting was conducted, and led to the conclusion that the second interpretation of "new data" as "current, recent, or fresh" should be withdrawn. As such, the rejection based on the second line of reasoning is withdrawn. However, the rejection should still be sustained based on the first line of reasoning.

Appellant's arguments on pp. 13-14 of the Brief are drawn to the second line of reasoning, which has been withdrawn as discussed above.

Regarding the first line of reasoning as discussed above, Appellant argues on p. 14 (middle) of the Brief that Kampe's checkpoint characteristics (e.g., format, states, control blocks, attributes) do not relate to the "loading of new data" of the claims. The examiner respectfully disagrees. The various data must be "loaded" (i.e., written to a storage device) as claimed, in order to manage the checkpoint. Specifically, the replica in Kampe contains a control block (§ 0084) which is a block of data in which new data is written (§ 0085, "crcs_cb_pwrite"). Furthermore, the checkpoint attributes (§ 0086) contain checkpoint-specific data that is newly written (e.g., creation time for a

checkpoint). Moreover, the checkpoint state (¶¶ 0080-0083) is data that is newly loaded each time the checkpoint changes state. Appellant acknowledges that such data is checkpoint-specific data (Brief, p. 14, second paragraph, line 8). Since the various checkpoint data are not the data of the primary component, but rather the data of the checkpoint, the data must be "new" with respect to the primary component, i.e., different from that of the primary component, when the checkpoint data is brought into existence. This meets the claimed subject matter of "new with respect to the production database."

Appellant further argues that "loading new data is not simply storing characteristic data of the checkpoint...but is instead new data that is loaded in the database and becomes production data" and that "there is no indication that the checkpoint characteristic data...is actually used after failover..." (Brief, p. 15, lines 1-12). The examiner respectfully disagrees at least because Appellant is relying on limitations that are not claimed. Specifically, the claims do not require that the loaded new data becomes production data, or is used after failover.

Appellant's further arguments on pp. 15 (middle) – p. 16 (middle) are also drawn to the second line of reasoning, which has been withdrawn as discussed above.

2. In response to "The examiner has failed to provide a proper reason to combine the two references"

Appellant argues that the examiner "has not provided any reason to make the specific combination and instead has merely provided a portion of Raman which describes a method for providing copies of consistent file systems with concurrent read-

write updating of the system" (Brief, p. 16, first paragraph under heading "2") The examiner respectfully disagrees.

The examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992).

In this case, Raman explicitly states that "it is desired to provide uninterrupted read-only access to remote copies of a consistent file system concurrent with read-write updating of the file system" (§¶ 0049). It would have been obvious to modify the storage replica system of Kampe with the teachings of Raman. The motivation for making the combination – to improve accessibility for data in a file system -- is not only found in the above paragraph of Raman, but is also known to one of ordinary skill in the art. For example, one would make the combination to improve accessibility for data files in a replicated storage system.

Appellant further argues that the examiner relied on improper hindsight reasoning (Brief, p. 17, lines 1-8). The examiner respectfully disagrees. It must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a

reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971). As discussed above, the combination in this case takes into account the knowledge of one of ordinary skill at the time the invention was made, and the knowledge in the prior art. The combination does not include knowledge gleaned only from the Appellant's disclosure. As such, the rejection of claims 1, 6-8, 9, 14, 15, and 20 is proper and the rejection should be sustained.

Claims 2, 10, and 16

In response to "Kampe in view of Raman fail to teach or suggest wherein the refresh mechanism is further configured to perform post-processing on the database clone prior to said switch."

The examiner respectfully disagrees. The cited portion of Kampe relates to creating a checkpoint and continuously updating the checkpoint. This meets the limitation of "post processing" at least because it is processing that occurs after the replica is initialized and during updating, (§ 0062) but before the failover switch (§ 0064). Furthermore, for the sake of argument, there must be further post-processing on the database clone in the form of any preparation commands before the switch, or the computer system could not perform the switch itself. It is noted that no particular definition of "post-processing" is claimed. The broadest reasonable interpretation in light of the specification is applied to the claims, and limitations from the specification are not read into the claims. As such, the prior art teaches or suggests the claimed subject matter, and the rejection of claims 2, 10, and 16 should be sustained.

Claims 5, 13, and 19

In response to “Kampe in view of Raman fails to teach or suggest wherein the generated database clone includes references to data in the production database.”

The examiner respectfully disagrees. Since the replica contains substantially the same data as the primary component, and is used for restoring the primary component, there is a relation between data from the replica and the data in the primary component. There is also a similar relation between the replica itself and the primary component. Thus, this meets the limitation that the clone includes “references” to data in the production database. If this were not the case, then the primary component could not be reliably restored with data from the replica, and the system would not know that a particular replica will be used for restoring a particular primary component. See Final Action and ¶¶ 0064 – 0065 of Kampe. It is noted that no particular definition of “reference” is claimed, and Appellant appears to be relying on an interpretation of “reference” which is not present in the claims. The broadest reasonable interpretation in light of the specification is applied to the claims, and limitations from the specification are not read into the claims. As such, the prior art teaches or suggests the claimed subject matter and the rejection of claims 5, 13, and 19 should be sustained.

Fourth Ground of Rejection

Claims 3, 11, and 17

1. In response to "Kampe in view of Raman and Ishihara fails to teach or suggest stopping the production database prior to said switching and starting the production database after said switching"

The examiner respectfully disagrees. The cited portion of Ishihara teaches stopping of a first database and the starting of a second duplicate database. Ishihara was used for the explicit teaching of stopping a production database (first database) and restarting a production database after the switch (col. 6, ll. 27-50). Note that after the switch, the second database becomes the production database. This meets the claimed subject matter, because the second database is the "production database after the switch," as claimed. See Final Action.

Appellant further argues that Ishihara teaches starting a different database, and this is not the same as stopping the first production database, switching the file system to the storage checkpoint, and restarting the same production database. The examiner respectfully disagrees at least because Appellant is relying on limitations that are not claimed. Specifically, the claims do not require that the "same" production database is restarted. Furthermore, for the sake of argument, the use of the word "switch" in the claim implies that the roles of the production database and the other database also switch.

2. In response to "The examiner fails to provide a proper reason to combine the references"

The examiner respectfully disagrees. The examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the motivation to stop/restart the database as claimed would have been to facilitate gracefully switching from one data system to another, as known to one of ordinary skill in the art. It is understood that the "first database" of Ishihara corresponds to the "primary component" of Kampe and the claimed "production database," and the "second database" of Ishihara becomes the "first database," and thus the "production database," because the roles have been switched. Therefore, the motivation is proper and the prior art teaches or suggests the claimed subject matter. The rejection of claims 3, 11, and 17 should be sustained.

Fifth Ground of Rejection

Appellant's arguments with respect to the rejection of claims 4, 12, and 18 as being unpatentable over Kampe, in view of Raman, and further in view of Appellant's Admitted Prior Art (AAPA) depend on the arguments already addressed above. Therefore, the rejection of claims 4, 12, and 18 should be sustained.

(11) Related Proceeding(s) Appendix

Art Unit: 2161

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Charles E Lu/

Examiner, Art Unit 2161

Conferees:

/Eddie C. Lee/

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